



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/818,123	03/27/2001	Frank Sauer	2001P05535US	8633

7590 09/24/2003
Siemens Corporation
Intellectual Property Department
186 Wood Avenue South
Iselin, NJ 08830

EXAMINER

GOOD JOHNSON, MOTILEWA

ART UNIT	PAPER NUMBER
----------	--------------

2672

DATE MAILED: 09/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/818,123

Applicant(s)

SAUER, FRANK

Examiner

Motilewa A. Good-Johnson

Art Unit

2672

– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06/30/2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This office action is responsive to the following communications: Application, filed 03/27/2001; Amendment A, filed 06/30/2003.

This action is made final.

2. Claims 1-18 are pending in this application. Claims 1 and 8 are independent claims. No claims have yet been amended. Claims 15-18 have been added.

3. The present title of this application is "Augmented Reality Guided Instrument Positioning with Depth Determining Graphics" (as originally filed).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-14 are rejected under 35 U.S.C. 102(a) as being anticipated by Poston et al., *Dextrous Virtual Work*, Communications of the ACM, May 1996, pages 37-45.

As per independent claim 1, a method for augmented reality guided instrument positioning, comprising the steps of: determining at least one graphics proximity marker for indicating a proximity of a predetermined portion of an instrument to a target; Poston discloses estimating the proximity of an object, page 30, paragraph 3; and rendering the at least one graphics proximity marker such that the proximity of the predetermined

portion of the instrument to the target is ascertainable . . . Poston discloses color markers to match the virtual tool to the position of the colored marker at stereo coordinates, page 40.

With respect to dependent claim 2, determining an optimal location for the predetermined portion of the instrument with respect to the target; and calculating the proximity of the predetermined portion of the instrument to the target based on the optimal location. Poston discloses selecting a virtual tool and determining a chosen position and displaying a highlighted path showing the path of the tool inserted with the frame displayed, page 42.

With respect to dependent claim 3, determining an optimal range of locations for the predetermined portion of the instrument with respect to the target; and calculating the range of proximity of the predetermined portion of the instrument to the target . . . Poston discloses using a contour editor to track and quantify motion with tags, page 43.

With respect to dependent claim 4, the proximity corresponds to a final forward position of the predetermined portion of the instrument with respect to the target. Poston discloses a probe inserted to the frame, page 42.

With respect to dependent claim 5, proximity comprises a first measure of proximity for indicating an outer surface of a target volume and a second measure of proximity for indicating an inner portion of the target volume. Poston discloses tag lines for inner and outer contours of the object in slices, page 43.

With respect to dependent claim 6, proximity comprises a first measure of proximity for indicating a front portion of a target volume and a second measure of

proximity for indicating a back portion of the target volume, the front portion corresponding to entering the target volume . . . Poston discloses using the virtual to slice through a virtual frame having volume, page 42.

With respect to dependent claim 7, determining at least one graphics path marker for identifying at least one path for the instrument to the target; and rendering the at least one graphics path marker . . . Poston discloses color markers to match the virtual tool to the position of the colored marker at stereo coordinates, page 40.

As per independent claim 8 and dependent claims 9-14 they are rejected based upon similar rational as above independent claim 1 and dependent claims 2-7 respectively.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Poston as applied to claim 1 above, and further in view of Hon, U.S. Patent Number 6,113,395, "Selectable Instruments with Homing Devices for Haptic Virtual Reality Medical Simulation", class 434/262, 09/05/2000, filed 08/18/1998.

With respect to dependent claim 15, determining a path to the target; and indicating the path to the target by a shape having a window . . . However, it is noted that Poston fails to disclose a path to the target indicated by a shape having a window. Hon discloses in figure 2, a window that indicates the instrument to the target. It would have been obvious to one of ordinary skill in the art at the time of the invention of Poston to include a window for the instrument path to allow a user a close up view of the target area.

With respect to dependent claim 16, determining a path to the target; and indicating the path to the target by a pattern of lines centered on the target wherein at least two lines are spaced differently from at least one other line . . . However, it is noted that Poston fails to disclose a pattern of lines centered on the target. Hon discloses a grid which tracks the approaching instrument to acquire the target and the instrument with the actuation, col. 10, lines 19-27. It would have been obvious to one of ordinary skill in the art at the time of the invention to include in the invention of Poston lines centered on the target to track the instrument to the target area.

With respect to dependent claims 17 and 18, they are rejected based upon similar rational as above dependent claims 15 and 16 respectively.

Response to Arguments

8. Applicant's arguments filed 06/30/2003 have been fully considered but they are not persuasive.

Applicant argues, in remarks presented on pages 4-6 of the response, Poston fails to disclose determining at least one graphics proximity marker and rendering the proximity graphics marker. Applicant states that Poston discloses how to calibrate a real space and a virtual space using markers, however does not disclose the markers are used to indicate proximity. Poston discloses in figure 3, on page 40, markers that show the proximity of the instrument and the target coordinates. Applicant argues that Poston does not discloses rendering the proximity marker such that the target is ascertainable based on the position of the marker on the instrument and the graphics proximity marker. Poston discloses and displays, therefore making it inherent that the marker are rendered, color markers to match the virtual tool to the position of the colored marker at stereo coordinates, page 40, see also figure 3.

Applicant argues that Poston fails to disclose proximity comprises a first measure of proximity for indicating an outer surface . . . an inner portion of the target volume. It is inherent that if Poston teaches determining a contour in slice, and inner and outer contours of the heart, then Poston meets the limitation of indicating an inner and outer surface of the target volume.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Motilewa A. Good-Johnson whose telephone number is (703) 305-3939. The examiner can normally be reached on Monday - Friday 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9314 for regular communications and (703) 872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-0377.

Motilewa A. Good-Johnson
Examiner
Art Unit 2672

Application/Control Number: 09/818,123
Art Unit: 2672

Page 8

mgj
September 9, 2003

A handwritten signature in black ink, appearing to be 'MR' followed by a stylized flourish.

MICHAEL RAZAVI
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600